

**"If you can see it  
(lightning), flee it (take  
shelter)."**

**"If you can hear it  
(thunder), clear it  
(suspend activities)."**

# AIRCRAFT MISHAPS & UPSETS

More than 50% of military aircraft weather-related in-flight mishaps are caused by lightning.

*-Major P.B. Corn, Air Force Flight Dynamics Lab.*

# AIRCRAFT MISHAPS & UPSETS

During 1988-1996, the US Air Force had direct costs of \$1,577,960 due to lightning damage to aircraft.

- *US Air Force Safety Center,  
Albuquerque NM.*

# AIRCRAFT MISHAPS & UPSETS

Lightning costs about \$2 billion annually in airline operating costs and passenger delays.

*-NOAA Report No. 18, MIT, 13  
Feb. 1998*

# **NUMBER OF DEATHS BY NATURAL HAZARDS, 1940-1981**

**LIGHTNING 7,741**

**TORNADO 5,268**

**FLOOD 4,481**

**HURRICANE 1,923**

# **6 COMMON MISCONCEPTIONS AND MYTHS**

**1. Lightning never  
strikes twice...**

*It strikes the Empire State  
Building in NYC some 22-25  
times per year !*

# 6 COMMON MISCONCEPTIONS AND MYTHS

2. Rubber tires or a foam pad will insulate me from lightning...

*It takes about 10,000 volts to create a one inch spark. Lightning has millions of volts and easily can jump 10-20 feet !*

# 6 COMMON MISCONCEPTIONS AND MYTHS

3. Lightning rods will protect my ropes course...

*Lightning rods are "preferential attachment points" for lightning. You do not want to "draw" lightning to any area with people nearby.*

# **6 COMMON MISCONCEPTIONS AND MYTHS**

4. We should get off the water when boating, canoeing or sailing...

*Tall trees and rocky outcrops along shore and on nearby land may be a more dangerous place.*

# **6 COMMON MISCONCEPTIONS AND MYTHS**

**5. A cave is a safe place in a thunderstorm...**

*If it is shallow cave, or an old mine with metallics nearby, it can be a deadly location during lightning.*

# **6 COMMON MISCONCEPTIONS AND MYTHS**

**6. Injured persons carry an electrical charge...**

*INJURED PERSONS do not carry an electrical charge and can be handled safely. Apply First Aid procedures to a lightning victim if you are qualified to do so. Call 911 or send for help immediately*

# **Top 10 lasting symptoms suffered by lightning strike victims**

<b>Symptom</b>	<b>% of victims</b>
<b>Memory Deficits &amp; Loss</b>	<b>52%</b>
<b>Depression</b>	<b>32%</b>
<b>Attention Deficits</b>	<b>41%</b>
<b>Inability to Sit Long</b>	<b>32%</b>
<b>Sleep Disturbance</b>	<b>44%</b>

# **Top 10 lasting symptoms Continued**

<b>Symptom</b>	<b>% of victims</b>
<b>External Burns</b>	<b>32%</b>
<b>Numbness/Parathesias</b>	<b>36%</b>
<b>Severe Headaches</b>	<b>32%</b>
<b>Dizziness</b>	<b>38%</b>
<b>Fear of Crowds</b>	<b>29%</b>

# **Of Those Reported**

- 85% of lightning victims are children and young men ages 10-35 engaged in recreation or work.
- 25% of strike victims die
- 70% of survivors suffer serious long-term after effects.
- Beyond this an unknown number of injuries do not require hospitalization.

# **Strike Locations**

**40% Unreported.**

**27% Open fields & recreation areas (not golf).**

**14% Under trees (not golf).**

**8% Water-related (boating, fishing, swimming...).**

**5% Golf/golf under trees.**

**3% Heavy equipment and machinery-related.**

**2.4% Telephone-related.**

**0.7% Radio, transmitter & antenna-related.**

# **More Facts**

**Gender = 84% male; 16%female.**

**70% of strikes happen between June and August.**

**Most strike occur between 2 PM to 6PM**

**Number of victims = One (91%), two or more (9%)**

# **More Facts**

- **Deaths by State, Top Five:**
  - FL, MI, TX, NY, TN
- **Injuries by State, Top Five:**
  - FL, MI, PA, NC, NY

# SAFETY TIPS

- ***PLAN in advance your evacuation and safety measures***
  - **IF OUTDOORS...** Avoid water. Avoid the high ground. Avoid open spaces.
  - **IF INDOORS...** Avoid water. Stay away from doors and windows. Do not use the telephone. Take off head sets

# SAFETY TIPS

- **SUSPEND ACTIVITIES** for 30 minutes after the last observed lightning or thunder.
- **INJURED PERSONS** do not carry an electrical charge and can be handled safely

# SAFETY TIPS

- If lightning is striking nearby when you are outside, you should:
  - ***Crouch down.*** Put feet together. Place hands over ears to minimize hearing damage from thunder.
  - ***Avoid proximity*** (minimum of 15 ft.) to other people.

# Flash/Bang

- By referencing the time in seconds from seeing the lightning (the FLASH, or "F" ) to hearing the accompanying thunder (the BANG, or "B"), we can range lightning's distance. A "F" to "B" of five seconds equals lightning distance being one mile away. A "F" to "B" of ten = two miles; a "F" to "B" of twenty = four miles; etc.

# New information

- Shows successive, sequential lightning strikes (distances from Strike 1 to Strike 2 to Strike 3) can be some 6-8 miles apart.
- Taking **immediate defensive actions** is recommended when lightning is indicated within 6-8 miles. The next strike could be close enough to be an immediate and severe threat.

# 3 FINAL TIPS

**1. AVOID:** Avoid water. Avoid all metallic objects. Avoid the high ground. Avoid solitary tall trees. Avoid close contact with others - spread out 15-20 ft. apart. Avoid contact with dissimilar objects (water & land; boat & land; rock & ground; tree & ground). Avoid open spaces.

## 2 FINAL TIPS

**2. SEEK:** Seek clumps of shrubs or trees of uniform height. Seek ditches, trenches or the low ground. Seek a low, crouching position with feet together with hands on ears to minimize acoustic shock from thunder.

# FINAL TIP

**3. KEEP:** Keep a high level of safety awareness for thirty minutes after the last observed lightning or thunder

- **If you still want more:**
  - [WWW.Lightningsafety.com](http://WWW.Lightningsafety.com)
  - (National Lightning Safety Institute)